LEAFLETS
of the Southern California Botanists

Volume 34 • Number 5 • July - September 2024

President's Message

Greetings Southern California Botanists,

Early registration is open for our 50th Annual SCB Symposium. Our theme is 50 Years of Milestones: the Past, Present, and Future of California Botany. It will be a botanical journey through time that would make Doc Brown say, "Great Scott!" and Ebenezer Scrooge reconsider all the wrong doings in his life. We have an amazing lineup of speakers to span the three time periods. In our past section, long-time SCB Board Member, Michelle Cloud-Hughes will be providing a brief history of our 90-year-old organization. We will hear from Mare Nazaire on the pioneering women in Southern California botany, Sarah Feakins on reconstructing the vegetation of lost lakes through ancient plant deposits, and Jon Rebman on botanical discoveries and rediscoveries. For a look at currently botanical milestones, we will hear from Samantha "Mo-Jo" Yang on current Land Back initiatives with the Tongva Taraxat Paxaavxa Conservancy, California Botanic Garden's Cheryl Birker on current seed conservation efforts, and myself on western Joshua tree conservation efforts led by the California Department of Fish and Wildlife. Then, we will blast into the future with Richard Rachman on developing remote sensing technologies, Karen Thorne on the future of our tidal wetlands, and Nick Jensen to hear about all the great national monument designations that will help California meet its 30x30 goals. Read the presenter bio's and their abstracts below.

Information and artist booths at this year's symposium include the Jepson Herbarium (hosted by Nina House and Staci Markos), Erin Berkowitz of Berbo Studio, Fred Roberts, Elissa Callen, Louis Aceves, Laura Falk Ceramics, and more! After the presentations, we will head over to the California Courtyard at California Botanic Gardens for our mixer and reception catered by Just Vegana - Taqueria Y Cocina Mexicana, and performance by everyone's favorite plant-based punk rock band **Sage Against the Machine**!

We hope to see y'all there!

Drew Kaiser, SCB President

Contents in Brief

- President's Message
- T-Shirt Design Contest Results
- Symposium Registration & Schedule
- Symposium Speakers & Abstracts
- What's in bloom?
- SCB Field Trips Report

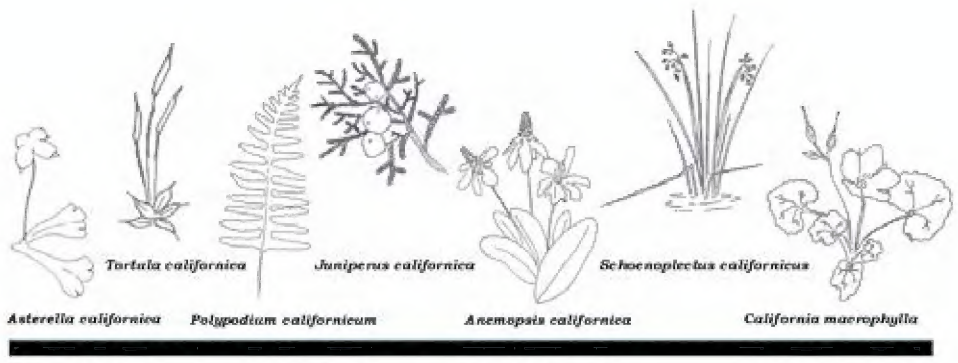
Symphyotrichum greatae (Greata's aster); CRPR 1B.3. Photo by Allison Rudalevige.

T-Shirt Design Contest

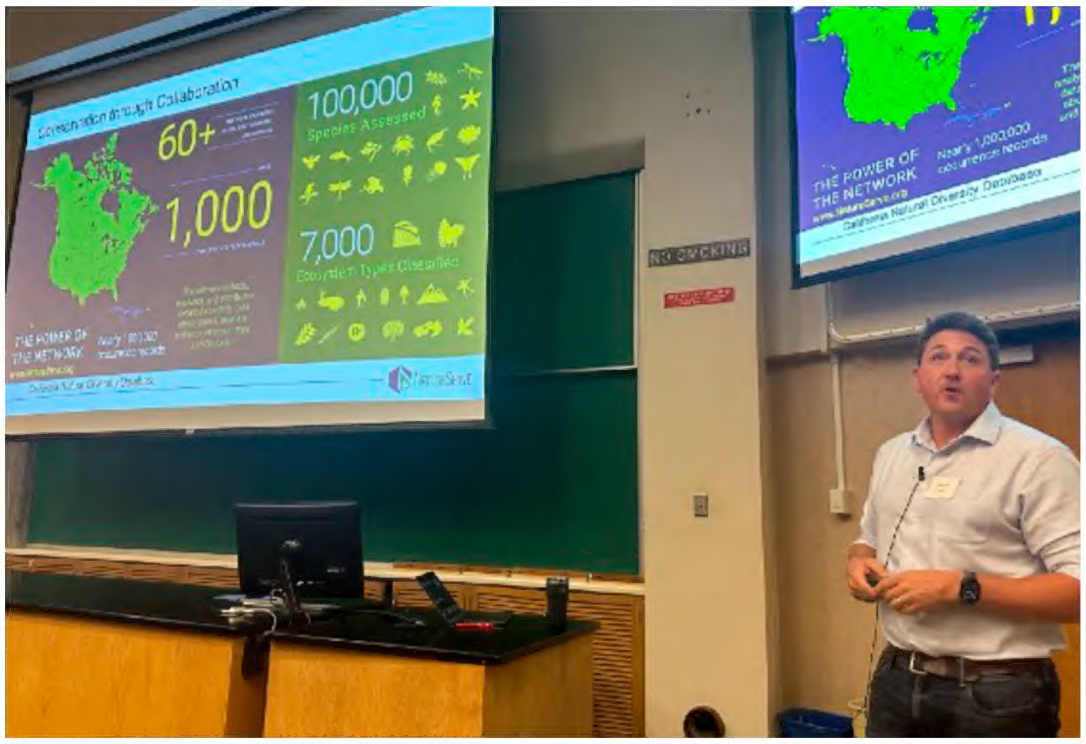
The 2024 Southern California Botanists symposium will be our organization's 50th symposium. The title of our symposium will be "50 Years of Milestones: The Past, Present, and Future of California Botany". For this special occasion, we held another t-shirt design contest and we are excited to officially announce the winner!

After a round of voting, Allison Rudalevige's design was chosen. Congratulations, Allison! You will be able to purchase this year's winning design on t-shirts at the symposium on October 26th.

Thank you to all the artists who submitted their fabulous artwork to this year's contest!



50 Years of Milestones:
The Past, Present, and Future of California Botany



Wesley Knapp, Chief Botanist at NatureServe, spoke at the 2023 symposium.

Symposium Schedule

Registration will begin on the morning of October 26th at 8:00 am. The symposium will officially start at 9:00 am and end by 5:00 pm. We will then move to the California Botanic Garden for the evening festivities!

5:00-8:30 pm **Mixer**: California Courtyard, California Botanic Garden
5:30-6:30 pm **Poster Session**: Sycamore Room, California Botanic Garden
6:30-8:00 pm **Dinner Service**: Just Vegana Catering ($20 meal ticket required)
7:00-7:30 pm **SCB Plant Trivia**: California Courtyard
7:30-8:30 pm **Sage Against the Machine**: California Courtyard (symposium attendees only)

Symposium Registration Open!

Early registration for the symposium is now open!

Click Here to Register

Early registration (ends October 19): $75
On-site registration: $90
Student early registration (ends October 19): $25
Student on-site registration: $40
Reception (optional): $20

Mark Porter, Nick Jensen, Sandy Namoff, and Erika Gardner at the 2019 symposium mixer.

Symposium Presentation Abstracts

A brief history of the Southern California Botanists

Michelle Cloud-Hughes, Consulting Botanist, Desert Solitaire Botany and Ecological Restoration

In honor of our 50th annual symposium, we will begin with a short history of the establishment and evolution of the Southern California Botanists, from its foundation in 1934 to the present day. Michelle Cloud-Hughes is an independent botanist and restoration ecologist specializing in the desert flora and ecosystems of North America. She is an authority on the genus Cylindropuntia (chollas) and an author of Cylindropuntia chuckwallensis, a rare California endemic and the most recent addition to California's cactus flora. She has been on the SCB Board of Directors and an editor of the SCB journal, Crossosoma, for ten years.

Pioneering women botanists of Southern California

Mare Nazaire, Ph.D., Herbarium Curator, California Botanic Garden

Women have not always figured prominently in botanical histories of southern California, yet they were incredibly important in the collective shaping of the discovery, study, and conservation of southern California's native plants. Some women, such as Mary Beal, Sarah Plummer Lemmon, and Mary DeDecker were amateur botanists or self-taught. Some, such as Alice Eastwood and Kate Brandegee were well recognized for their contributions to botany, while others, such as Josephine Cornelia Bruce and Mary Strong Clemens, remained in obscurity. Most endured social and economic hardships and defied gender stereotypes to pioneer the field. As we celebrate 50 years of Southern California Botanists, we highlight the women who have made significant contributions to southern California botany. Mare Nazaire is Research Assistant Professor at Claremont Graduate University and the Curator of the Herbarium at California Botanic Garden. She received her Ph.D. in botany from Washington State University in 2013. She has worked as a botanist for over 20 years in locations throughout the United States, including New England, the Southwest and the Pacific Northwest. Her research focuses on the systematics and biogeography of the genus Mertensia (Boraginaceae), floristics of California, and aquatic vascular plants. She is a Taxon Editor for the Flora of North America (FNA) overseeing families Lamiaceae and Hydrophyllaceae, and has authored several treatments for FNA.

Lost lakes of California: plant wax and pollen records of past changes in climate and vegetation

Sarah Feakins, Ph.D., Professor of Earth Sciences, University of Southern California

Written on the landscape of California's eastern interior are the saltpan beds of former lakes, with their maximum shorelines now left high and dry. Drilling of lake floors has recovered continuous sedimentary records of past climate and vegetation, with archives extending through the past two glacial cycles spanning 200 thousand years, and as far back as 3.3 million years ago. We found the penultimate glacial termination (135 thousand years ago) was locally wetter than the last termination, with Searles Lake actively spilling into the next basin, as part of a chain of 'great lakes' both large and deep. Pollen and plant wax in sediment cores record the changing inputs associated with a shifting elevation transition between desert plants and conifers, showing the repeated responsiveness of vegetation to climate swings. The waxy molecules from plant leaves records the plant inputs and the changing rainfall patterns along with microbial lipid evidence for temperatures and lake conditions. Although the cooler glacials were wetter than the warmer and drier intervals, the wettest times occurred at the glacial terminations, when atmospheric rivers delivered their strongest moisture flux. The Pliocene warm period was both warmer and wetter than today, with winter- dominated rainfall, but the wettest phase of the Pliocene was during the M2 glaciation, one of the first Laurentide glaciations 3.3 million years ago. These glacial cool-wet periods recharged the aquifers and filled lake basins, but earlier Miocene wetter climates were sustained by summer rainfall in a warmer climatic context. The quest is to read the molecular clues to understand the past and to anticipate the next tipping point between climate states.

Sarah Feakins is Professor of Earth Sciences at USC. She runs the “leaf wax lab” an organic geochemical and compound specific isotopic analytical laboratory where she works with undergraduates, graduate students, postdoctoral researchers to reconstruct vegetation and climate from soils, lakes and ocean sediments around the world. Projects underway in the lab at present include lake reconstructions from Utah, marine core studies around the Portuguese margin and the Mediterranean coastline of Spain, studies at sites of human origins in Ethiopia, high altitude samples from Chile, and an altitude transect in Nepal. Prior work included studies of plant wax across California to understand the nature of the plant wax proxy for precipitation isotopes and reconstructions from shorter lake cores from Zaca and Elsinore, as well as the drill cores records from Searles lake that are the focus of this talk. She is currently seeking to find plant wax evidence for Miocene climate in Southern California.

Plant discoveries and rediscoveries in the Southern California/Baja California Region
Jon P. Rebman, Ph.D., Curator of Botany, San Diego Natural History Museum

As a result of data compiled in voucher-based checklists of vascular plants of San Diego and Imperial counties and of Baja California, Mexico, we have a much better understanding of the floras in these areas. As herbaria increase databasing and digitization efforts, we are finding out new information about historic specimen collections and realizing that some of our plants have not been documented in a very long time and are lost from science and from conservation efforts. However, with the ever-growing efforts of botanists and plant enthusiasts on platforms such as iNaturalist, we have the opportunity to mitigate these deficits and harness community science to continue to improve our knowledge of regional floras. This presentation will focus on the discovery of new plants and the rediscovery of “lost” plants from Southern California and Baja California. It will discuss various endeavors like a botanical project that Rebman and Mexican colleagues received from the National Geographic Society to revisit the type localities of 15 endemic and “lost” species in the Baja California region along with its challenges and successes. The talk will also discuss how iNaturalist is aiding in our attempts to rediscover many lost plants, improve our local diversity and distribution knowledge, and identify new species for science as well.

Jon P. Rebman is the Mary and Dallas Clark Endowed Chair/Curator of Botany at the San Diego Natural History Museum since 1996. Dr. Rebman is a plant taxonomist and conducts extensive floristic research in Baja California and in San Diego and Imperial Counties. His primary research interests have centered on the systematics of the cactus family in Baja California, especially the genera Cylindropuntia (chollas) and Opuntia (prickly-pears). However, he also does a lot of general floristic research and has co-published the most recent edition of the Checklist of the Vascular Plants of San Diego County and the Annotated Checklist of the Vascular Plant of Baja California, Mexico. He has over 30 years of field experience with surveying and documenting plants including rare and endangered species. As a field botanist, he is a very active collector of scientific specimens with his personal collections numbering over 37,200. To date, he has named and described 33 new plants for science from the southern California and Baja California region.

“The desert regions of Baja California and southern California satisfy my need for scientific adventure while providing a sense of excitement towards botany, reverence for nature and its unaltered beauty, appreciation for the complexity of natural history, and an overall feeling of peace and purpose.”

The Biology of Land Back
Samantha Morales-Johnson (Mo-Jo) Yang, Biologist and Science Illustrator, Tongva Taraxat Paxaavxa Conservancy

The Biology of Land Back tells the story of land restoration through the experience of a federally unrecognized tribe, the Tongva people. The first acre of land back came with many challenges that the Tongva people could not resolve without the help of other people who want to see the improvement of Mother Earth. The mix of western and indigenous science exponentially improving a heavily impacted piece of land is a testament to the progress that can be made with teamwork, modern science, and Traditional Ecological Knowledge.

Samantha Mo-Jo Yang is a Gabrieleno/Tongva biologist and science illustrator, in her work with the Tongva Taraxat Paxaavxa Conservancy, she successfully mobilized non-native volunteers and Tongva youth to execute a massive cleanup of the first acre of returned land to the Tongva. Clearing over 40 tons of trash and 200 non-native trees, Samantha plans to restore many more acres of Tovangaar (LA County) in her lifetime.

The California Seed Bank: Conserving the Botanical Diversity of the Golden State

Cheryl Birker, Seed Conservation Program Manager, California Botanic Garden California is the most biodiverse state in the country, boasting over 6,500 native plant taxa with high levels of both rarity and endemism. In the face of habitat destruction, climate change, altered fire regimes, the spread of invasive species, and many other threats, there is an urgent need to protect this botanical diversity. Seed banking is a cost-effective strategy for the long-term conservation of plant diversity. With over 6,000 accessions representing over 2,500 taxa, the California Seed Bank is the largest seed repository dedicated to conserving the flora of California. These collections help safeguard our most threatened plants from extinction, conserve material for habitat restoration, and serve as source material for research as well as for living collections at botanic gardens for increased public education and appreciation. In this talk we'll learn about the facility, the collection, and the projects that have been bringing us closer to our goal of seed banking as many California native plant taxa as possible.

Cheryl Birker is the Seed Conservation Program Manager at the California Botanic Garden (CalBG). Cheryl has a B.S. in Biology with a Concentration in Biodiversity, Ecology and Conservation Biology from California State University Fullerton (CSUF). While pursuing her undergraduate degree, Cheryl conducted independent research in Dr. Darren Sandquist's plant ecophysiology lab, participated in the Southern California Ecosystems Research Program, worked in the CSUF greenhouse complex, and interned with the DEVELOP National Program at Nasa Langley Research Center. Cheryl started at CalBG as an intern in the Conservation Department shortly after graduating and worked her way up to managing the seed bank in 2016. Cheryl enjoys the collaborative nature of plant conservation in California, playing active roles in two collaborative programs: the California Plant Rescue and Seed LA.

Widespread, abundant, and imperiled: The dilemma of western Joshua tree and the power of concerted conservation

Drew Kaiser, Senior Environmental Scientist (Specialist), California Department of Fish and Wildlife

The saga of western Joshua tree (Yucca brevifolia) embodies a unique and difficult conservation dilemma where a widespread and abundant plant species is threatened by a multitude of factors, including but not limited to climate change, wildfire, and development, that could lead to the significant reduction of its range in California over the long term. Existing permitting mechanisms that navigate regulatory protections through the California Endangered Species Act (CESA) can present significant financial and logistical hurdles for the hundreds of thousands of people with this species in their backyard. Implemented in 2023, the Western Joshua Tree Conservation Act (WJTCA) codifies a new approach to managing and conserving an imperiled species in California that would otherwise be prohibited under CESA. In this presentation, we discuss the differences between CESA and WJTCA, challenges in implementing the WJTCA in its infancy, and how the Western Joshua Tree Conservation Plan, as required by the WJTCA, will seek a more concerted, holistic approach to conserve the species.

Drew Kaiser is a Senior Environmental Scientist (Specialist) with the California Department of Fish and Wildlife. He was hired by CDFW in June 2023 to provide technical support for the planning and implementation of the WJTCA. Prior to his current position, he spent 12 years working for the National Park Service in Mojave National Preserve and Death Valley National Park. He has also been on the board of the Southern California Botanists since 2019 and is currently the President. In his free time, he enjoys backpacking, brewing beer, and volunteering with the GLORIA Great Basin Chapter. If all goes to plan you should be able to enjoy some of his tasty beer while rocking out to Sage Against the Machine at the reception. Cheers!

Beep, boop, bap, and other robot noises; examples and methodologies to studying spatial arrangement of plants using remote sensing
Richard Rachman (He/him/his), Doctoral Student, Boise State University

Native plant communities face global threats, including urbanization, climate change, invasive species, and increasing wildfire frequency. Understanding the spatial patterns in which plants persist amid these disturbances is critical, and modern technologies like drones, thermal and spectral sensors, and satellite imagery enhance this understanding. In the sagebrush steppe of southern Idaho and southeastern Oregon, we analyze post-wildfire recovery of native shrubs, grasses, and forbs, focusing on spatial clustering along gradients of time since fire and elevation. In urban bareground patches of Boise and Garden City, Idaho, we examine how invasive species cluster in response to thermal microhabitats. Our findings will inform restoration and invasive species management strategies in disturbed ecosystems under a changing climate.

Richard Rachman is a PhD student, plant ecologist, and research assistant in the Caughlin lab, Biological Sciences Department, Boise State University, Idaho. Richard is interested in studying invasive species, disturbance, and community science using remote sensing methods, all while elevating and promoting native plants. In his free time, he teaches queers, foragers, and other community members of all ages about plant identification and local ecologies.

The future of California's tidal wetlands with climate change
Karen Thorne, Ph.D., Research Ecologist, USGS Western Ecological Research Center

Climate change impacts to California's iconic coastline include higher sea levels, changes in storm frequency and intensity, warmer air and ocean temperatures, and changes in precipitation patterns. The rates of change over the next century are expected to be significantly higher than what has been observed in the past. Sea-level rise threatens to flood or displace tidal wetlands making them a management and conservation concern, especially given the number of endemic and rare species that live there. Tidal wetlands are uniquely adapted to respond to stressful environments and changes in flooding. Because of their ability to adapt to sea-level rise they have become the focus for restoration efforts and nature-based solutions. Studies on tidal wetland vulnerability from sea-level rise along with approaches for climate adaptation to protect these ecosystems will be presented.

Dr. Karen Thorne is a Research Ecologist with the USGS Western Ecological Research Center in Davis, CA. Her research focus is on climate change impacts to coastal ecosystems. In particular, her work has included assessing sea-level rise and storm impacts to coastal ecosystems, wetland ecology, restoration, and blue carbon. She conducts research to inform climate adaptation and planning to help managers mitigate impacts and conduct restoration. Her research is based on field data collection methods that can be developed into climate change impact models. She received her Ph.D. and MS from the University of California, Davis.

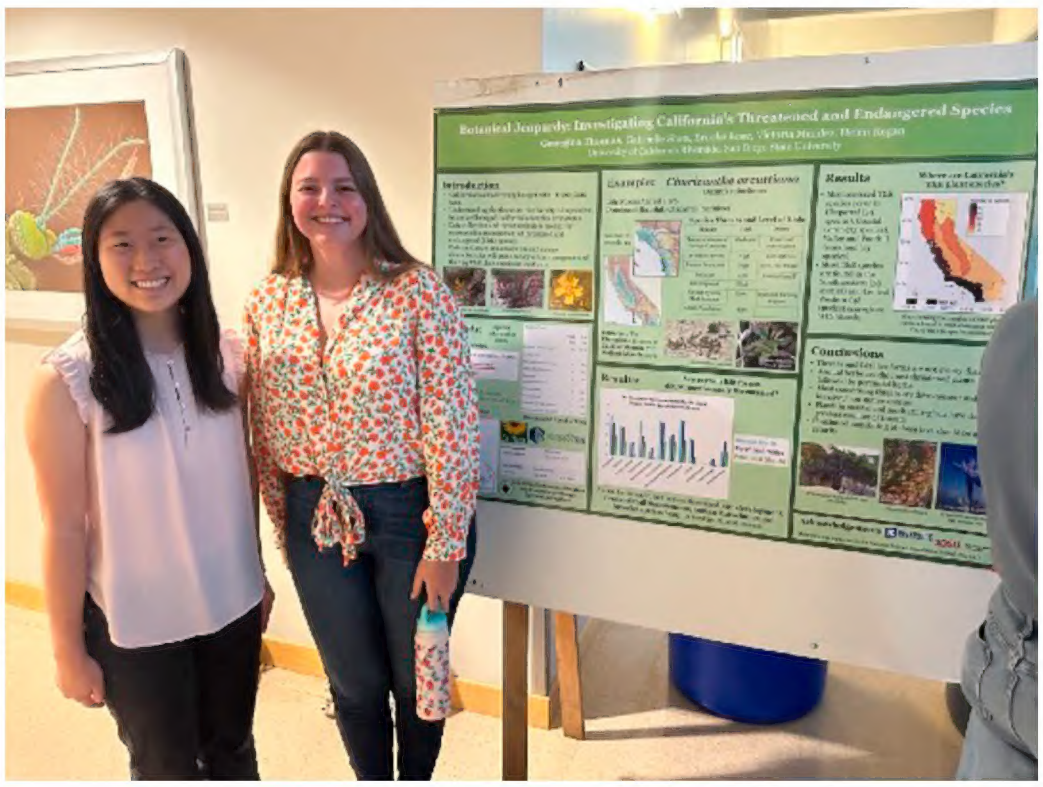
National Monuments and the 30x30 Initiative
Nick Jensen, Conservation Program Director, California Native Plant Society

In the face of the twin crises of climate change and biodiversity loss, the federal and California state governments have taken ambitious steps toward ensuring that vast areas of the state are conserved and managed well. In 2020, Governor Gavin Newsom signed an executive order with the goal of conserving 30 percent of California's land and waters by 2030, while emphasizing the pillars of equity, biodiversity, and climate action. This effort is known as the 30x30 Initiative. While officials will employ a variety of pathways toward this goal, one important tool that has emerged is the use of presidential authority under the Antiquities Act to increase protections on vast areas of public lands by expanding existing or creating new national monuments. Environmental organizations, including the California Native Plant Society (CNPS), have joined other organizations, local leaders and Tribes to call for the protection of more than one million acres of land by the end of President Biden's first term. This exciting work resulted in the expansion of the San Gabriel Mountains and Berryessa Snow Mountain National Monuments in May of this year. In his talk, SCB past-president and current CNPS Conservation Program Director, Nick Jensen, will cover some of the specifics of national monument designations/expansions, and what these mean for the conservation of

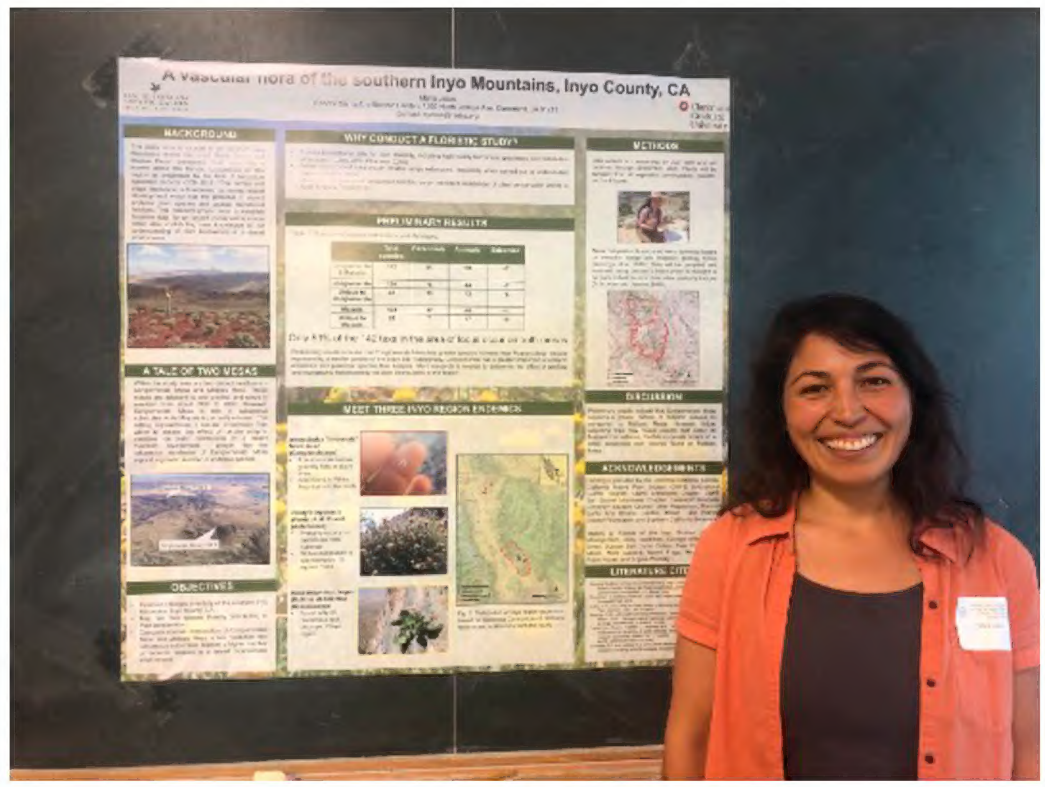
habitats statewide, and the botanical diversity they support. Nick will focus on three national monument campaigns (twoof which are in the California desert) that need continued support, as advocates make the final push for presidential action in the last months of 2024. Nick Jensen currently serves as the Conservation Program Director for the California Native Plant Society (CNPS) and is a fellow of the Switzer Foundation. In this position, he oversees the conservation work of staff and volunteer advocates statewide. Nick's work involves state and federal legislative advocacy, project-level work including presiding over litigation, participation in coalitions of environmental organizations, media relations, and collaborating with a team of talented conservation professionals. Nick earned his BS in Environmental Horticulture at UC Davis and completed his Ph.D. in botany at California Botanic Garden/Claremont Graduate University. As a graduate student Nick produced the first Flora of Tejon Ranch, documenting plant diversity on California's largest contiguous piece of private land. He also studied evolutionary patterns in perennial Streptanthus (jewelflowers). From 2006-2010, he was employed by CNPS, first as a Vegetation Program Assistant, and later as the Rare Plant Program Director. Nick has also worked as a botanist or ecologist for the U.S. Forest Service, U.C. Davis, the Chicago Botanic Garden, and the private consulting industry. He has taught botany classes to professionals and interested members of the public for CNPS, California

Call for Poster Abstracts

If you are interested in sharing your research, or know of students who would like to share with a friendly, enthusiastic crowd we're putting out a call for poster abstracts! Abstracts are due **September 30, 2024** and must be submitted electronically to posters (at) socalbot.org. Please include all authors, author affiliations, and poster title in the body of the email. Limit abstracts to 250 words, and please indicate if the poster presenter is a student. Submitters will be notified by October 2, 2024 if their poster has been accepted. Please do not submit abstracts for posters that have been previously displayed at a SCB symposium. A free 1-year SCB membership will be awarded to the student with the best poster. Additionally, student poster presentations qualify for free symposium registration!



Last year's poster contest winners, Georgina Thomas and Gabrielle Shen! They presented on Botanical Jeopardy: Investigating California's Threatened and Endangered Plant Species.



The 2019 poster contest winner, Maria Jesus. She presented on A Vascular Flora of the southern Inyo Mountains, Inyo County, CA.

What's in Bloom?

Showcasing the beauty of California's native flora.

Salvia pachyphylla (Rose Sage)
Lamiaceae
Mount San Jacinto State Park, July 2024
Photo Credit: Justin Wood

Abronia villosa var. *aurita* (Desert Sand Verbena)
Nyctaginaceae
CRPR 1B.1
August 2024
Photo Credit: Duncan Bell

Would you like to be featured?
Send your photographs to bcproctor@g.ucla.edu

SCB Field Trip

We have had several field trips recently that were a huge success!

In September, SCB wrapped up the field trip season with a special trip to Pt. Mugu in Ventura County. We partnered with Naval Base Ventura County's Natural Resources Land and Wetland Program Manager, Valarie Vartanian to gain access and tour the Pt. Mugu wetlands. In addition to Valerie's expertise of the wetlands, we were also spoiled with insights from long-time Naval base botanists Rick Burgess and Trish Munro, and THE Wayne Farren. It was a unique opportunity to not only have access to this special place but also to be surrounded by the experts.

Botanists studying three sympatric *Erigeron* spp.
Photo by Diana Brand Ramirez.

Shorty *Spartina foliosa* (California cord grass) in the wetland.

Salicornia depressa (Virginia glasswort) showing off fall scarlet color. Photo by Diana Brand Ramirez.

The Pt. Mugu wetlands were an impressive sight even at a time of the year when you wouldn't expect it. As we arrived at our first stop, Trish pointed out that the wetlands boast their own fall color show. Though not as dramatic as the sight of a forest of aspen trees shedding their leaves, the pickleweed (*Salicornia pacifica*) was just turning red, beginning its cycle of going dormant for the winter. Other splashes of color in the wetland included the purple saltmarsh bird's beak (*Chlorpyron maritimum* ssp. *maritimum*) with its pale pink flowers still in bloom! The salt marsh bird's beak in Pt. Mugu is known as the northern most population and has the longest recorded blooming season when compared to the southern populations. We also encountered a variety of other species you expect to see in a wetland including alkali heath (*Frankenia salina*), Parish's glasswort (*Arthrocnemum subterminale*), estuary seablight (*Suaeda esteroa*), and the shortest population of California cordgrass (*Spartina foliosa*)!

We ended the field trip with great appreciation for our expert leaders, the opportunity to explore the wetlands, and the protection of the wetland.

✿ SAVE THE DATE ✿

50th Southern California Botanists Symposium

/) /)　　(\ (\
(„ᵔ ᵕ ᵔ)　(ᵔ ᵕ ᵔ„)
(づ✿　　✿ど)

50 Years of Milestones:
The Past, Present, and Future
of California Botany

✿ October 26, 2024 ✿

Native Plant Gardens

- California Botanic Garden, calbg.org
- Fullerton Arboretum, at CSU Fullerton, fullertonarboretum.org
- Los Angeles County Arboretum and Botanic Garden, tinyurl.com/hahpacyd
- Native Garden at Golden West College, tinyurl.com/ymfrke3z
- Nature Gardens at Natural History Museum of L.A. Co., tinyurl.com/47th7nfz
- San Diego Botanic Garden, sdbg.org
- Santa Barbara Botanic Garden, sbbotanicgarden.org
- UCLA Mildred E. Mathias Botanical Garden, botgard.ucla.edu

SCB Grants Program

Did you know that SCB has a 41-year tradition of awarding grants?

* SCB Annual Grant
* Susan Hobbs Grant for Field Research
* Alan Romspert Grant in Desert Botany
* Jessica Mae Orozco Diversity Grant
* SCB Conservation Grant

For more information, visit socalbot.org/grants or inquire at grants@socalbot.org

Please donate to the SCB Grants Program and help fund these wonderful grants: paypal.me/socalbot?locale.x=en_US

Membership

Join SCB or renew your existing membership online via PayPal at: socalbot.org

Other Grants Programs

* CNPS Student Research Grants, cnps.org/education/students/grants
* Orange County Chapter CNPS Grants, occnps.org/education/grants.html
* Dean Taylor Botanical Exploration Memorial Award, norcalbotanists.org
* California grassland research, cnga.org/GRASSgrants

Do you have something to contribute to *Leaflets*?

We like short informal articles, notes, sketches, & photographs. Send email to the Editor: SoCalBotNewsletter@gmail.com

To submit scientific articles for publication in *Crossosoma*, send email to editor@socalbot.org